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gaseous etchant [containing] comprising chlorine, bromine, or a compound thereof [after the metallic film is selectively covered with the mask made of a resist]; and

a second step of removing the mask used in said etching by ashing [using] by contacting said mask with a plasma generated in an atmosphere comprising oxygen gas and water vapor, and

thereby removing chlorine, bromine, or a compound thereof which are components of the gaseous etchant that remains on a surface of the metallic film exposed as a result of said removing of the mask, [by forcing] said removing of the gaseous etchant components including using the plasma to force the gaseous etchant compounds to be released from the substrate.

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3. (Twice Amended) The method according to claim 2, [wherein] further comprising the step of: providing a barrier layer [for blocking a reaction] between the metallic film and the substrate [is provided] so as to prevent a reaction between the metallic film and the substrate.

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5. (Twice Amended) The method according to claim 1, wherein during said second step, said removing of the mask and said removing of chlorine, bromine, or a compound thereof which are components of the gaseous etchant [the metallic film exposed as the result of said removing of the mask are exposed to] each include using neutral active species extracted from the plasma.

Claim 7, line 5 delete "containing" and insert therefor
--comprising--.

11. (Twice Amended) A method for producing semiconductor integrated circuits, comprising the steps of:

a first step of selectively etching a metallic film exposed through a mask by [using] contacting said metallic film exposed through said mask with a gaseous etchant [containing] comprising chlorine, bromine, or a compound thereof after the metallic film formed on a surface of a substrate is selectively covered with the mask made of a resist;

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a second step of removing the mask used in said etching by ashing [using] by effectively contacting said mask with a first plasma generated in [an] a first atmosphere [containing] comprising oxygen gas; and

a third step of removing chlorine, bromine, or a compound thereof, which are components of [a] residual etchant on a surface of the metallic film which have become exposed as the result of said removing of the mask, said step of removing the residual etchant components including [using] contacting said metallic film with a second plasma generated in [an] a second atmosphere [containing] comprising water vapor thereby forcing the residual etchant components to be released from the [substrate] surface of said metal.

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16. (Twice Amended) The method according to claim 11, [wherein] further comprising the step of: providing a barrier layer

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[for blocking the reaction] between the metallic film and the substrate [is provided] so as to prevent a reaction between the metallic film and the substrate.

20. (Twice Amended) An apparatus for producing semiconductor integrated circuits, comprising:

an etching chamber having [etching] means for selectively etching a metallic film formed on a substrate, [and] which is partially covered with a mask formed of a resist, [the] and means for introducing an etching means [incorporating] comprising a gaseous etchant [containing] comprising chlorine, bromine, or a compound thereof into effective contact with said exposed metallic film;

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an ashing chamber having [ashing] means for ashing the mask formed on the substrate, said ashing chamber being connected through a first load lock chamber, which is capable of making a vacuum, to said etching chamber, wherein said ashing means [incorporating] comprises means for generating a first plasma [generated in an] from a first atmosphere [containing] comprising oxygen gas and means to contact said plasma with the mask under conditions sufficient [so as] to remove the mask; and

an after-treatment means comprising a chamber, [including after-treatment] means for removing residual chlorine, bromine, or a compound thereof which has become exposed on a surface of the metallic film on the substrate by the ashing of said mask, said after-treatment chamber being connected to said ashing chamber through a second load lock chamber which is capable of

making a vacuum, [said after-treatment] means [incorporating] for generating a second plasma [generated in an] from a second atmosphere [containing] comprising water vapor, and means for introducing a gas containing water vapor into said second plasma generating means.

21. (Twice Amended) The apparatus according to claim 20, wherein said after-treatment chamber further includes

[a plasma generating section into which gas containing water vapor is introduced and into which a plasma generating means for generating a plasma in the gas is connected and]

a treatment section which is connected to the second plasma generating [section] means, [and] wherein said second plasma generating means and treatment [sections] section are [being] divided from each other by a division wall [in which are defined small] having openings therein through which neutral active species in [a] the second plasma pass, and on which the substrate is placed.

22. (Twice Amended) The apparatus according to claim 20, [wherein] including means for introducing the gas containing water vapor [is introduced into] into said after-treatment chamber with the substrate placed therein, and wherein said after-treatment chamber has substantially parallel flat-plate type electrodes disposed on both sides of the substrate with the substrate located